

June 6, 2014



U.S. Department
of Transportation

East Building, PHH-30
1200 New Jersey Avenue S.E.
Washington, D.C. 20590

**Pipeline and Hazardous
Materials Safety Administration**

DOT-SP 13032
(NINTH REVISION)

EXPIRATION DATE: May 31, 2018

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Carleton Technologies Inc.
Orchard Park, NY
2. PURPOSE AND LIMITATIONS:
 - a. This special permit authorizes the manufacture, mark, sale and use of non-DOT specification, non-refillable, composite pressure vessels for the transportation in commerce of the materials authorized by this special permit. This special permit provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein.
 - b. The safety analyses performed in development of this special permit only considered the hazards and risks associated with transportation in commerce. The safety analyses did not consider the hazards and risks associated with consumer use, use as a component of a transport vehicle or other device, or other uses not associated with transportation in commerce.
 - c. The pressure vessels authorized by this special permit are limited to use on the Exoatmospheric Kill Vehicle, a part of the National Missile Defense Program.
3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.
4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR § 173.302a(a)(1) in that the use of non-DOT specification packaging is not authorized, except as specified herein.

5. BASIS: This special permit is based on the application of Carleton Technologies Inc., dated May 22, 2014, submitted in accordance with § 107.109.
6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Hazardous Material Description			
Proper Shipping Name	Hazard Class/ Division	Identi- fication Number	Packing Group
Nitrogen, compressed	2.2	UN1066	N/A
Krypton, compressed	2.2	UN1056	N/A

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Packaging prescribed is a non-DOT specification, nonrefillable, composite pressure vessel (cylinders and toroids). The pressure vessel is constructed of welded titanium liners and overwrapped with carbon fiber filaments. Each pressure vessel must be designed and manufactured in conformance with Raytheon Systems Company EKV Development Specification for the Adapter Cryo Gas Supply Assembly Numbers DS60649-624 and DS60649-625 and Carleton Technologies Inc.'s drawings 1811-178-01 (for toroids) and 1109-207-01 (for cylinders) dated February 11, 2002 and March 25, 2003 respectively, on file with the Office of Hazardous Materials Special Permits and Approvals (OHMSPA). Additionally, each pressure vessel must be in conformance with the following:

- (1) Safety devices. Pressure vessels are not equipped with pressure relief devices.

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(2) Type, size, service, test, and burst pressures.

Pressure Vessel	Maximum Water Capacity (Liters)	Maximum Fill Pressure (psig) *	Minimum Test Pressure @ 130°F (psig)	Minimum Burst Pressure (psig)
Cylinder	0.25	8225	15,000	22,500
Toroid	0.5 (N2) 2.0 (Kr)	8225	16,600	23,500

* Fill pressure is +/- 75 psig at 64°F

(3) Material.

(i) Cylinders must be constructed of a welded liner of 6AL 4V Annealed titanium per MIL-T9047G with Carbon epoxy impregnated continuous filament windings in both longitudinal and circumferential directions.

(ii) Toroids must be constructed of a welded liner of 15-3-3-3 titanium with Carbon epoxy impregnated continuous filament windings.

(4) Manufacture.

(i) Welding procedures and operators must be qualified in accordance with MIL-STD-2219 and MIL-STD-1595.

(ii) Design stresses and load distributions for the liner and overwrap must be as shown in the Carleton Technologies Inc. application for special permit on file with the OHMSPA.

b. TESTING - Design qualification testing except for shock, acoustic, and acceleration tests must be performed at Carleton Technologies Inc.'s facilities in accordance with the following test procedures and acceptance criteria:

(1) Acceptance Test Procedure for N2 Gas Cylinder Assembly Carleton Technologies Inc. P/N 1811-174-01 (ATP-482) dated January 12, 2002, and

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(2) Acceptance Test Procedure for Adapter Gas (Toroid) Assembly Carleton Technologies Inc. P/N 1811-178-01 (ATP-483) dated May 7, 2001.

c. OPERATIONAL CONTROLS -

(1) This special permit authorizes transportation from Carleton Technologies Inc.'s facilities to and from off-site testing facilities for the purpose of completing the design qualification testing and evaluation. Only pressure vessels that pass all on-site acceptance tests at Carleton Technologies Inc. facilities are authorized to be transported off-site.

(2) Pressure vessels are non refillable.

(3) Pressure vessels must be shipped in strong outside packagings in accordance with § 173.301(a)(9).

(4) Pressure vessels must be shipped in a temperature controlled environment between 45°F and 90°F.

8. SPECIAL PROVISIONS:

a. In accordance with the provisions of Paragraph (b) of § 173.22a, persons may use the packaging authorized by this special permit for the transportation of the hazardous materials specified in paragraph 6, only in conformance with the terms of this special permit.

b. A person who is not a holder of this special permit, but receives a package covered by this special permit, may reoffer it for transportation provided no modification or change is made to the package and it is offered for transportation in conformance with this special permit and the HMR.

c. A current copy of this special permit must be maintained at each facility where the package is offered or reoffered for transportation.

d. Each packaging manufactured under the authority of this special permit must be either (1) marked with the name of the manufacturer and location (city and state) of the facility at which it is manufactured or (2) marked with a registration symbol designated by the Office of Hazardous Materials Special Permits and Approvals for a specific manufacturing facility.

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e. A current copy of this special permit must be maintained at each facility where the package is manufactured under this special permit. It must be made available to a DOT representative upon request.

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle
10. MODAL REQUIREMENTS: A current copy of this special permit must be carried aboard each motor vehicle used to transport packages covered by this special permit.
11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this special permit and penalties prescribed by the Federal hazardous materials transportation law, 49 U.S.C. 5101 et seq:
 - o All terms and conditions prescribed in this special permit and the Hazardous Materials Regulations, 49 CFR Parts 171-180.
 - o Persons operating under the terms of this special permit must comply with the security plan requirement in Subpart I of Part 172 of the HMR, when applicable.
 - o Registration required by § 107.601 et seq., when applicable.

Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this special permit must receive training on the requirements and conditions of this special permit in addition to the training required by §§ 172.700 through 172.704.

No person may use or apply this special permit, including display of its number, when this special permit has expired or is otherwise no longer in effect.

Under Title VII of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)—"The Hazardous Materials Safety and Security Reauthorization Act of 2005" (Pub. L. 109-59), 119 Stat. 1144 (August 10, 2005), amended the Federal hazardous materials transportation law by changing the term "exemption" to "special permit" and authorizes a special permit to be granted up to two years for new special permits and up to four years for renewals.

12. REPORTING REQUIREMENTS: Shipments or operations conducted under this special permit are subject to the Hazardous Materials Incident Reporting requirements specified in 49 CFR §§ 171.15 Immediate notice of certain hazardous materials incidents, and 171.16 Detailed hazardous materials incident reports. In addition, the grantee(s) of this special permit must notify the Associate Administrator for Hazardous Materials Safety, in writing, of any incident involving a package, shipment or operation conducted under terms of this special permit.

Issued in Washington, D.C.:



for Dr. Magdy El-Sibaie
Associate Administrator for Hazardous Materials Safety

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Pipeline and Hazardous Materials Safety Administration, Department of Transportation, Washington, D.C. 20590. Attention: PHH-31.

Copies of this special permit may be obtained by accessing the Hazardous Materials Safety Homepage at http://hazmat.dot.gov/sp_app/special_permits/spec_perm_index.htm Photo reproductions and legible reductions of this special permit are permitted. Any alteration of this special permit is prohibited.

PO: CWFreeman/SGrey